

## Patent Claims

1. Derivates of natural, semisynthetic and synthetic lipids, characterised in that these derivatives comprise oligomers of the lipids selected from ceramides and/or sphingosines.
  
2. Derivatives of natural, semisynthetic and synthetic lipids according to claim 1, characterised in that the fatty acid component of the sphingosines and the fatty acid components of the ceramides comprise palmitic acid (n-hexadecanoic acid,  $C_{15}H_{31}-COOH$ ) or another monocarboxylic acid with a chain length of between 10 and 40 C-atoms.
  
3. Derivatives of natural, semisynthetic and synthetic lipids according to claim 1 and 2, characterised in that the fatty acid components are selected from the saturated monocarboxylic acids n-dodecanoic acid (lauric acid,  $C_{11}H_{23}-COOH$ ), n-tetradecanoic acid (myristicin acid,  $C_{13}H_{27}-COOH$ ), n-octadecanoic acid (stearic acid,  $C_{17}H_{35}-COOH$ ), n-icosanoic acid (arachidic acid,  $C_{19}H_{39}-COOH$ ), n-tetracosanoic acid (lignoceric acid,  $C_{23}H_{47}-COOH$ ), *cis*- $\Delta^9$ -hexadecenoic acid (palmitoleic acid,  $C_{15}H_{29}-COOH$ ), *cis*- $\Delta^9$ -octadecenoic acid (oleinic acid, oleic acid,  $C_{17}H_{33}-COOH$ ), *cis,cis*- $\Delta^9$ - $\Delta^{12}$ -octadecadienoic acid (linoleic acid,  $C_{17}H_{31}-COOH$ ), all-*cis*- $\Delta^9$ , $\Delta^{12}$ , $\Delta^{15}$ -octadecatrienoic acid (linolenic acid,  $C_{17}H_{29}-COOH$ ),  $\alpha$ -hydroxytetracosanoic acid (cerebronic acid,  $C_{22}H_{43}-CHOH-COOH$ ) or from decanoic acid ( $C_{10}H_{21}-COOH$ ), octacosanoic acid ( $C_{28}H_{57}-COOH$ ) or *cis*- $\Delta^9$ -octacosanoic acid ( $C_{28}H_{55}-COOH$ ).

4. Derivatives of natural, semisynthetic and synthetic lipids according to claims 1 to 3,  
characterised in that,  
within the oligomeric lipid molecule, the cross-linkage of respectively two adjacent lipid monomers is effected strictly alternately either in the "tail-to-tail" arrangement or in the "head-to-head" arrangement.
5. Derivatives of natural, semisynthetic and synthetic lipids according to claims 1 to 4,  
characterised in that  
two adjacent lipid molecules are bonded respectively in the "tail-to-tail" arrangement via their hydrophobic fatty acid radical, preferably via the  $\omega$ -position carbon atom of the fatty acid chain, by a covalent bond.
6. Derivatives of natural, semisynthetic and synthetic lipids according to claims 1 to 5,  
characterised in that  
two adjacent lipid molecules are bonded respectively in the "tail-to-tail" arrangement via a so-called "intradimeric spacer" with a freely selectable molecule chain length and composition.
7. Derivatives of natural, semisynthetic and synthetic lipids according to claim 6,  
characterised in that  
the intradimeric spacer comprises at least one carbon atom and/or at least one heteroatom (oxygen, nitrogen etc.)
8. Derivatives of natural, semisynthetic and synthetic lipids according to claims 1 to 7,  
characterised in that

two adjacent lipid molecules are bonded to each other in the "head-to-head" arrangement respectively via their hydrophilic structural component.

9. Derivatives of natural, semisynthetic and synthetic lipids according to claims 1 to 8, characterised in that two adjacent lipid molecules are bonded in the "head-to-head" arrangement via a so-called "interdimeric spacer" with a freely selectable molecule chain length and composition.
10. Derivatives of natural, semisynthetic and synthetic lipids according to claim 9, characterised in that the spacer situated between the two lipid dimers which are cross-linked in the "head-to-head" arrangement is predominantly hydrophilic.
11. Derivatives of natural, semisynthetic and synthetic lipids according to claims 9 or 10, characterised in that the spacer situated between the two lipid dimers which are cross-linked in the "head-to-head" arrangement contains as structural components, e.g. glycerine, amino acids and/or carbohydrate components (monosaccharides, disaccharides, oligosaccharides etc.), and/or further structural components such as e.g. mevalonic acid or pyrrolidone carboxylic acid.
12. Pharmaceutical preparation containing lipids according to at least one of the claims 1 to 11 as active substance.
13. Use of the lipids according to at least one of the claims 1 to 11 to produce a pharmaceutical preparation for diseases in which a

disorder of the lipid composition of the cell membranes of an organism with respect to its content of ceramides and sphingosines is present.

14. Use of the lipids according to at least one of the claims 1 to 11 to produce a pharmaceutical preparation for the treatment of diseases in which a disorder of the composition of the lipid bilayers of the stratum corneum of the skin with respect to its content of ceramides and sphingosines is present.